

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

(PCT Rule 43bis.1)

To:

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Date of mailing
(day/month/year)

17 DECEMBER 2004 (17.12.2004)

Applicant's or agent's file reference

FM241517

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/KR2004/002476

International filing date (day/month/year)

24 SEPTEMBER 2004 (24.09.2004)

Priority date(day/month/year)

01 OCTOBER 2003 (01.10.2003)

International Patent Classification (IPC) or both national classification and IPC

IPC7 H04B 1/036

Applicant

UTStarcom Korea Limited et al

1. This opinion contains indications relating to the following items:



Box No. I Basis of the opinion



Box No. II Priority



Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability



Box No. IV Lack of unity of invention



Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement



Box No. VI Certain documents cited



Box No. VII Certain defects in the international application



Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR



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**WRITTEN OPINION OF THE
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International application No.

PCT/KR2004/002476

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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PCT/KR2004/002476

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1	NO
Industrial applicability (IA)	Claims	1	YES
	Claims		NO

2. Citations and explanations :

D1 : US 20030039096

D2 : US 6356445

The claimed inventions relate to a compact thermal exchange device for thermo-electric cooling mode, which comprises a thermal electric cooling unit, heat pipes, fins, and fans.

The citation D1 discloses a heat dissipation apparatus for a notebook comprising a fan, heat sink disposed underneath a fan, a heat pipe connected to a conduction block. The citation D2 discloses a heat dissipating device comprising a heat sink, a fan, a heat pipe, and an adjuster for adjusting distance between an electronic device and the heat sink.

Both D1 and D2 include the heat pipe for transmitting heat and the fan for cooling the transmitted heat, which are very close to the cooling means suggested in the claimed invention. However the claimed inventions disclose a new structure linking the heat pipe to a high density fin stack and a thermo-electric cooling unit which none of the citations suggest. Therefore the claim 1 is considered to fulfil the requirement of novelty under PCT Article 33(2). However the scheme of a fin stack formed around the heat pipe is obvious to a person skilled in the art or is suggested in the prior art. Consequently the claims 1 is not considered to fulfil the requirement of inventive step under PCT Article 33(3).